Plant Pathology Circular No. 133
August 1973

Fla. Dept. Agr. & Consumer Serv.
Division of Plant Industry

VERTICILLIUM WILT OF CHRYSANTHEMUM

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Florida's chrysanthemum industry has expanded rapidly during the last 25 years, with most of the production in Martin and Palm Beach counties on the east coast, and in Lee, Charlotte, Hillsborough, and Manatee counties on the west coast (3).

Verticillium wilt, considered rare in 1966 (3), is becoming increasingly important, particularly in the 2 east coast counties. This disease, caused by the fungus Verticillium albo-atrum Reinke and Berth., has been a serious problem on mums in northern states, but not in Florida. With the current practices of continuously replanting the same susceptible crop and the plowing under of infected plant debris, a buildup of the Verticillium fungus in the soil could result (4).

SYMPTOMS. The first indication of Verticillium wilt is a characteristic paling and wilting of the lower leaf margins. Eventually, the entire leaf wilts and dies (fig. 1). Early symptoms often involve only part of the plant or even one side of a stem or leaf (1). Wilting of the entire plant does not necessarily occur, but leaf injury may progress up the stem and affect all of the foliage. Infected plants often are stunted, and flowers are reduced in **size** (2), **but** even the most susceptible varieties seldom are killed by the disease.

Fig. 1. Verticillium wilt of chrysanthemum, showing wilting and dying of lower leaves.

Contribution No. 353, Bureau of Plant Pathology.

DISEASE DEVELOPMENT. Roots of healthy plants are infected by the fungus which persists in the soil. The fungus then spreads through the vascular system. During periods of rapid vegetative growth of the host, only minor symptoms result. When growth of the plant is slowed, such as during flowering, the fungus permeates the vascular tissue of the leaves and even the base of flowers, and symptoms develop rapidly.

CONTROL. The fungus is spread in 2 ways (1). Locally it is spread by movement of infested soil or contaminated equipment and by workmen's shoes; long distance spread is accomplished almost entirely by cuttings taken from diseased plants. Thus, control is achieved by using only pathogen-free cuttings, and by growing plants in soil sterilized by steam or treated with chloropicrin (4). In fields with a history of Verticillium wilt, the planting of highly susceptible varieties should be avoided. Many varieties are resistant, and they should be planted whenever possible.

Literature Cited

1. Dimock, A. W., C. E. Williamson, and P. E. Nelson. 1964. Diseases, p. 116–150. In R. W. Langhans [ed.], Chrysanthemums. New York State Coll. Agr., Cornell Univ., Ithaca, New York.
2. Forsberg, J. L. 1963. Diseases of ornamental plants. Univ. Illinois, Coll. Agr. Spec. Publ. 3:47–49.
3. Jackson, C. R., and L. A. McFadden. 1966. Revised by R. 0. Magie and A. J. Overman. Chrysanthemum diseases in Florida. Fla. Agr. Exp. Sta. Bull. 637A. 49 p.
4. Wilhelm, S., and R. H. Sciaroni. 1954. Verticillium in chrysanthemum. Calif. Agr. 8:9–10.